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ABSTRACT

This program guide identifies primary concerns in the organization, operation, and evaluation of a basic cabinetmaking and millwork program. The guide begins with the Dictionary of Occupational Titles occupational description. A section on program content presents the curriculum framework that contains major concepts/content, laboratory activities, special note, and intended outcomes and the student performance standards that are divided into the 13 outcomes shown in the curriculum framework. The section on program implementation addresses the following: teacher characteristics, conventional instructional methods, student admissions criteria, student placement, cooperative education, and student organization participation. An instructional resources section lists suggested resources organized by outcome. The section on setting up classroom and laboratory facilities covers facility design recommendations and safety, maintenance, and liability. The next section lists equipment items by outcome. The last section discusses teacher technical updating and teacher standards. A list of professional organizations and support services follows. A Career Merit Achievement Plan (Career MAP) is attached. It displays the competencies required for entry into the field of basic cabinetmaking and millwork and documents the level of achievement that the student should demonstrate. (YLB)

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FLORIDA VOCATIONAL PROGRAM GUIDE FOR

BASIC CABINET MAKING AND MILLWORK

Prepared by

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INTRODUCTION

Vocational education meets the needs of students desiring to pursue a selected vocation and is designed to provide training that is realistic in meeting present and future employment opportunities. In recent years, applications of science and technology have expanded rapidly, increasing the education and training required of workers. This has made vocational training programs more attractive as an educational option. The new technologies require well-trained workers to carry out both standardized and specialized procedures, and whose training foundation has given them the capacity to keep pace with continuing technology demands.

The Florida Department of Education shares with business and industry the determination to provide opportunities for upward mobility to as many Floridians as possible. Vocational training programs can keep pace with the demands of new industrial patterns and can provide the opportunity for many of our citizens to gain financial stability and an improved sense of self worth. Therefore, it is necessary to create exemplary vocational programs and to make those programs consistent throughout the state.

This Program Guide identifies primary concerns that should be considered in the organization, operation and evaluation of a vocational education program. It has been developed to provide useful information to local school district and community college administrators, instructors, program advisory committees, regional coordinating councils and others charged with the responsibility of offering vocational education programs.

OCCUPATIONAL DESCRIPTION

A principle occupational title is identified for each vocational training program. This title is validated by the United States Department of Labor Dictionary of Occupational Titles (DOT) or other appropriate references. Such references may be the United States Department of Commerce Standard Occupational Classification Manual (SOC), the Occupational Employment Statistics Survey Dictionary (OES), or Vocational Preparation and Occupations (VPO) prepared by the National and State Occupational Information Coordinating Committees. Information obtained from industry advisory committees may also be used to validate the principle occupational title. The job title and code number for this program are listed in the curriculum framework which accompanies this guide.

The United States Department of Labor Dictionary of Occupational Titles (D.O.T.) identifies the job title for this occupational area as follows:

D.O.T. JOB TITLE	D.O.T. CODE
Furniture Assembler	763.684-038
Patternmaker	661.281-022

The definition (description) for this job title is taken from the D.O.T. for easy reference.

763.684-038 FURNITURE ASSEMBLER.

Assembles wooden parts or assemblies to form sections, frames or complete articles of furniture: Trims joints to fit, using handtools. Blows dust from mortises and areas to be glued, using airhose. Spreads glue on surfaces to be joined by drawing wood across roller partially submerged in glue, by using brush dipped in glue or by using glue-filled squeeze bottle. Knocks connecting parts together with mallet or compresses assembled parts in clamp until glue has dried. Wipes excess glue from joints with rag. Drills holes and drives screws into parts to join parts or to reinforce glued joints, using power drill and screwdriver. Attaches glue blocks, metal braces, corner blocks, drawer guides, tops, molding, shelves, dust bottoms, back panels or skids with nails, screws, glue or staples, using handtools and power tools. Inspects and verifies accuracy of assembled article for conformance to specified standards, using square and tape measure. Smooths irregular joints with rasp and sandpaper and levels chair legs, using circular leveling saw. May drill holes and attach hardware, such as drawer guides, drawer locks, catches and latches, using power drill and

handtools. May slide drawers in and out to test ease of movement and adjust ill-fitting drawers, using handtools. May be designated according to part or article assembled.

661.281-022 PATTERNMAKER.

Plans, lays out and constructs wooden unit or sectional patterns used in forming sand molds for castings according to blueprint specifications, using handtools and power tools: Lays out pattern on wood stock, dividing pattern into sections according to shape of casting to facilitate removal of pattern from mold, utilizing knowledge of casting techniques and using marking and measuring devices, such as scriber, shrink rule and square. Cuts and shapes parts, using bandsaw, lathe, planer and router. Fits and fastens parts together to form pattern or section, using glue, nails, dowels and screws. Trims, smooths and shapes surfaces, using handtools, such as plane, drawknife, chisels and mallets. Assembles sections and verifies dimensions of complete pattern, using templates, straightedges, calipers and protractors. Glues fillets along interior angles of pattern. Paints pattern in standard code colors to indicate method of assembly. Shellacs, lacquers or waxes finished pattern. May construct templates for use in shaping irregular curves in pattern [TEMPLATE MAKER (any ind.)]. May construct wooden models. May be designated according to type of pattern constructed as DIE-CAST PATTERNMAKER; DIE-LAY-OUT WORKER. May repair broken or damaged patterns to compensate for defects in castings and be designated PATTERN SETTER.

PROGRAM CONTENT

The Division of Vocational, Adult, and Community Education, as required by State Board of Education (S.B.E.) **Rule 6A-6.0571**, publishes Vocational Education Program Courses Standards annually. This document specifies the minimum program content for the operation of a vocational training program for the occupational titles listed. Each program identified in the Florida Department of Education Course Code Directory is required to establish course standards. The standards for each vocational offering are comprised of two major components: (1) Curriculum Framework and (2) Student Performance Standards.

Curriculum Framework (CF)

The Curriculum Framework specifies the exact course title, course number, levels of instruction, major course content, laboratory activities, special notes, major course concepts and intended outcomes. The program requirements stipulated in the curriculum framework have been approved by the State Board of Education and are the legal bases for delivery of instruction.

Student Performance Standards (SPS)

The Student Performance Standards are a resource list of job-specific competencies. This list is generated and approved by industry experts and becomes the basis for curriculum development in vocational programs. Local school districts and community colleges must, by law, adopt student performance standards for their vocational programs. They may, at their discretion, adopt the list provided or develop their own as long as there is sufficient content to address each intended outcome. A program may provide instruction beyond the minimum specified in the SPS if desired. The decision to do this should be based on local industry needs. However, the minimum must be presented.

The SPS for secondary level programs contain a third component, course structure. This component specifies the number of courses required for program completion and the content of each course. The courses may be taught in any sequence, but the content may not be changed unless approved by the Division of Vocational, Adult, and Community Education.

The curriculum framework and student performance standards are intended for use as a guide, not a teaching tool. Teachers or curriculum development personnel are expected to develop or select complete curriculum materials for their training programs based on the curriculum framework and student performance standards. Each intended outcome and SPS should be thoroughly analyzed for related cognitive and procedural subskills. The curriculum framework and student performance standards are presented in the following pages.

CURRICULUM FRAMEWORK PROGRAM AREA: Industrial

FLORIDA DEPARTMENT OF EDUCATION EFFECTIVE DATE: July, 1989

PROGRAM TITLE: Basic Cabinet Making and Millwork

CODE NUMBER: Secondary 8721100 Postsecondary _____

Florida CIP IN48.072300

SECONDARY SCHOOL CREDITS 6 COLLEGE CREDITS _____ POSTSECONDARY ADULT VOCATIONAL CREDITS _____

APPLICABLE LEVELS(S): __ 7-9 __ 9-12 __ Postsecondary Adult Vocational

_____ Postsecondary Vocational __X__ Other 10-12, 30, 31

CERTIFICATION COVERAGE: CAB WOODWK 7 CARPENTRY 7

I. MAJOR CONCEPTS/CONTENT: The purpose of this program is to prepare students for employment as furniture assemblers (763.684-038) and patternmakers (661.281-022). This program also provides supplemental training for persons previously or currently employed in this occupation.

The course content will include the following: instruction in using hand tools; operating portable power tools and stationary power woodworking machines; planning, designing and layout of cabinets and casework; constructing and assembling cabinet components; constructing joints; fastening stock and joints; constructing and installing cabinet drawers and doors; applying laminates; finishing surfaces; and basic safety rules and procedures.

The course content should also include Principles of Work Environment Readiness (P.O.W.E.R.) skills training in communication, leadership, human relations and employability skills; and safe, efficient work practices.

Listed below are the courses that comprise this program when offered at the secondary level:

8721110 Basic Cabinet Making and Millwork 1
8721120 Basic Cabinet Making and Millwork 2
8721130 Basic Cabinet Making and Millwork 3
8721140 Basic Cabinet Making and Millwork 4
8721150 Basic Cabinet Making and Millwork 5
8721160 Basic Cabinet Making and Millwork 6

II. LABORATORY ACTIVITIES: Shop or laboratory activities are an integral part of this program. These activities provide instruction in the use of tools, equipment, materials and processes found in the industry. Students are also instructed in the following: table saws, redial arm saws, jointers and planers, band saws, routers and shapers, belt sanders, drills and drill presses, portable power hand tools and hand tools.

III. SPECIAL NOTE: The Vocational Industrial Clubs of America, Inc., is the vocational student organization which reinforces classroom instruction by providing communications, leadership, human relations and employability training experiences. It also reinforces specific vocational skills. When provided, these activities are considered an integral part of this program.

The cooperative method of instruction may be utilized for this program. When the cooperative method is offered, the following is required for each student: a training plan signed by the student, teacher and employer which includes instructional objectives and a list of on-the-job and in-school learning experiences; and a work station which reflects equipment, skills and tasks relevant to the occupation the student has chosen as a career goal. The student must receive compensation for work performed.

The outcomes and student performance standards which the handicapped student must master must be specified in each student's individual education plan (IEP). Additional credits may be earned when outcomes and standards are mastered in accordance with subsequent IEP's. The job title for which the student is being trained must be designated in the IEP.

IV. INTENDED OUTCOMES: After successfully completing this program, the student will be able to:

01. Demonstrate proficiency in applying safety rules and procedures.
02. Demonstrate proficiency using hand tools.
03. Demonstrate proficiency operating portable power tools.
04. Demonstrate proficiency operating stationary power woodworking machines.
05. Demonstrate proficiency in planning, designing and layout of cabinets and casework.
06. Demonstrate proficiency in constructing and assembling cabinet components.
07. Demonstrate proficiency in constructing joints.
08. Demonstrate ability to fasten stock and joints.
09. Demonstrate proficiency in constructing and installing cabinet drawers and doors.
10. Demonstrate proficiency in applying laminates.
11. Demonstrate ability to finish surfaces.
12. Demonstrate employability skills.
13. Demonstrate an understanding of entrepreneurship.

STUDENT PERFORMANCE STANDARDS EFFECTIVE DATE: July, 1989

PROGRAM AREA: Industrial SECONDARY NUMBER: 8721100

PROGRAM TITLE: Basic Cabinet Making and Millwork PROGRAM NUMBER: _____

01.0 DEMONSTRATE PROFICIENCY IN APPLYING SAFETY RULES AND PROCEDURES--The student will be able to:

01.01 Apply shop safety rules and procedures.
01.02 Apply personal safety rules and procedures.
01.03 Apply fire safety rules and procedures.
01.04 Apply electrical safety rules and procedures.

02.0 DEMONSTRATE PROFICIENCY USING HAND TOOLS--The student will be able to:

02.01 Identify types and uses of files and rasps.
02.02 Lay out angles with squares.
02.03 Gage lines parallel to an edge with fingers, rules and squares.
02.04 Make cross cuts and rip cuts using hand saws.
02.05 Cut stock at an angle using a miter box.
02.06 Cut stock with a coping saw, back saw and keyhole saw.
02.07 Cut metal using a hacksaw.
02.08 Divide a distance into equal spaces using a divider.
02.09 Scribe and fit edges of stock to an irregular surface.
02.10 Sharpen drill bits and wood chisels.
02.11 Drill holes with hand drills.
02.12 Drive and set nails and screws.
02.13 Sharpen planes and cabinet scrapers.
02.14 Smooth wood surfaces using planes and cabinet scrapers.
02.15 Measure stock using rulers and tape measures.
02.16 Use a wood chisel to notch or mortise stock.

03.0 DEMONSTRATE PROFICIENCY OPERATING PORTABLE POWER TOOLS--The student will be able to:

03.01 Utilize a circular saw to make straight, beveled and compound angle cuts.
03.02 Utilize a saber saw to make straight, beveled and compound angle cuts.
03.03 Utilize a portable drill to bore holes to specified depths.
03.04 Drive screws using a power screwdriver or screw gun.
03.05 Uitlize a power plane to square a straight edge.
03.06 Utilize a router to shape edges and cut a groove, dado and rabbet.
03.07 Sand surfaces with a belt sander and a finishing sander.
03.08 Fasten material with a pneumatic stapler or nailer.
03.09 Fasten a butt joint with a pneumatic corrugated fastener tool.

04.0 DEMONSTRATE PROFICIENCY OPERATING STATIONARY POWER WOODWORKING MACHINES--The student will be able to:

04.01 Use a table saw to make cross, rip, miter, dado and groove cuts.

04.02 Use a radial arm saw to make cross, rip, miter, compound angle, dado and groove cuts.
04.03 Use a drill press to drill, counterbore and countersink holes in stock and bore holes at an angle.
04.04 Use a jointer to square, bevel or chamfer stock.
04.05 Use a plane to trim stock to a specified thickness.
04.06 Use a band saw to make straight, curved, rectangular and freehand cuts.
04.07 Remove and replace band saw blades and adjust guides.
04.08 Use a router to cut stock with and without a template.
04.09 Use a shaper to mold stock with a template, fence, miter gage or pin and bearing.
04.10 Use a power miter saw to make miter cuts.
04.11 Sand surfaces using power belt, disc and spindle sanders.

05.0 DEMONSTRATE PROFICIENCY IN PLANNING, DESIGNING AND LAYOUT OF CABINETS AND CASEWORK--The student will be able to:

05.01 Convert measurements in inches to metric and metric to inches.
05.02 Interpret blueprints and explain common abbreviations used on drawings.
05.03 Draw plans to scale using an architect's ruler.
05.04 Lay out a rectangle, hexagon, octagon, ellipse and circle.
05.05 Lay out angles.
05.06 Select and match wood stock for compatibility of grain and color.

06.0 DEMONSTRATE PROFICIENCY IN CONSTRUCTING AND ASSEMBLING CABINET COMPONENTS--The student will be able to:

06.01 Lay out and cut cabinet components from solid wood, plywood and particle board.
06.02 Lay out and cut joints in cabinet components.
06.03 Assemble and fasten cabinet base frame.
06.04 Assemble and fasten cabinet sides, back and front.
06.05 Prepare cabinet components for special fittings.
06.06 Cut and assemble cabinet shelving.
06.07 Assemble and fasten cabinet top.
06.08 Lay out and cut back splash components.

07.0 DEMONSTRATE PROFICIENCY IN CONSTRUCTING JOINTS--The student will be able to:

07.01 Construct a butt joint.
07.02 Construct a doweled butt joint.
07.03 Construct a dado joint.
07.04 Construct a rabbeted joint.
07.05 Construct a lap joint.
07.06 Construct a miter joint.
07.07 Install dowels in common wood joints.
07.08 Construct a tongue and groove joint.
07.09 Construct a splined edge joint.
07.10 Construct a mortise and tenon joint.
07.11 Construct a dovetail joint.
07.12 Construct an end lap joint.
07.13 Construct a middle lap joint.

07.14 Construct a cross lap joint.
07.15 Construct a dovetail lap joint.
07.16 Construct a draw bolt joint.

08.0 DEMONSTRATE ABILITY TO FASTEN STOCK AND JOINTS--The student will be able to:

08.01 Identify types of glues and describe their applications.
08.02 Fasten stock with wood glue and clamps.
08.03 Glue boards edge to edge.
08.04 Fasten and glue mitered frames.
08.05 Fasten and glue doweled joints and segments.
08.06 Fasten stock and joints with nails, screws, bolts and staples.
08.07 Fill and finish nail and screw holes.
08.08 Install wood plugs in prepared holes.
08.09 Install and glue corner blocks.

09.0 DEMONSTRATE PROFICIENCY IN CONSTRUCTING AND INSTALLING CABINET DRAWERS AND DOORS--The student will be able to:

09.01 Construct an overlay drawer.
09.02 Construct a lipped drawer.
09.03 Construct a flush drawer.
09.04 Install drawer guides.
09.05 Install drawer hardware.
09.06 Construct solid, panel and tambour doors.

10.0 DEMONSTRATE PROFICIENCY IN APPLYING LAMINATES--The student will be able to:

10.01 Cut laminates to rough size of cabinet surface.
10.02 Apply glue to laminate and cabinet surfaces.
10.03 Accurately place laminate on cabinet surfaces.
10.04 Press and smooth laminate on cabinet surfaces.
10.05 Trim off excess laminate and file edges.
10.06 Seam two pieces of laminate together.
10.07 Remove excess glue from laminate surfaces.

11.0 DEMONSTRATE ABILITY TO FINISH SURFACES--The student will be able to:

11.01 Sand wood surfaces for finishing.
11.02 Stain, bleach, fill and seal wood surfaces.
11.03 Apply clear and pigmented finishes using a brush.

12.0 DEMONSTRATE EMPLOYABILITY SKILLS--The student will be able to:

12.01 Conduct a job search.
12.02 Secure information about a job.
12.03 Identify documents which may be required when applying for a job interview.
12.04 Complete a job application form correctly.
12.05 Demonstrate competence in job interview techniques.
12.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor or other employees.
12.07 Identify and adopt acceptable work habits.

12.08 Demonstrate knowledge of how to make job changes appropriately.
12.09 Demonstrate acceptable employee health habits.

13.0 DEMONSTRATE AN UNDERSTANDING OF ENTREPRENEURSHIP--
The student will be able to:

13.01 Define entrepreneurship.
13.02 Describe the importance of entrepreneurship to the American economy.
13.03 List the advantages and disadvantages of business ownership.
13.04 Identify the risks involved in ownership of a business.
13.05 Identify the necessary personal characteristics of a successful entrepreneur.
13.06 Identify the business skills needed to operate a small business efficiently and effectively.

PROGRAM IMPLEMENTATION

It is the teacher's responsibility to ensure that students learn how to competently perform the tasks specified in the course objectives. Therefore, the teacher must lead the students through the learning experiences in a course, motivate students, act as a role model for students and, at times, function as a guidance counselor and placement coordinator. This leadership role requires the teacher to participate in many of the activities required for program implementation. The teacher must select the methods of instruction that best apply to students' ability levels, measure student achievement and provide feedback. Key factors that must be considered when implementing this program are addressed below.

TEACHER CHARACTERISTICS

Subject Knowledge

The teacher must be a subject matter expert who is able to implement sound instructional methods and evaluate student performance. He/she must have significant work experience in the industry/vocational field and be able to communicate that knowledge to the students.

Instructional Delivery

The teacher's role in the learning process is to motivate and lead the student as well as impart subject matter knowledge. In order to maximize student learning, the use of a variety of instructional methods is encouraged. Because teaching styles vary greatly, teachers are highly encouraged to "pick and choose" from various methods or to combine methods for maximum benefit to students. Some of the more traditional methods used are lecture, demonstration and small group instruction. Other teaching methods which are suggested for further exploration include individualized self-paced, open-exit/open-entry, contract, computer based and competency based instruction. The focus of Competency Based Vocational Education (CBVE) is to ensure that each student can competently perform tasks specified before progressing to more complex skills.

CONVENTIONAL INSTRUCTIONAL METHODS

A vocational program may require a portion of the instruction to be presented in a standard lecture or controlled demonstration format. These methods of instruction can be easily combined with instructor controlled step-by-step practical exercises. Some instructional activities may dictate that this instructional approach be used to introduce students to hazardous equipment often utilized in vocational training. In most situations, students should be required to perform specified activities to achieve maximum skill competency. If mastery of a task is required, competency based education methods may be more appropriate. However, if the training activity involves an orientation or a seldom performed, non-essential task, conventional instructional methods may be more effective. Teachers are encouraged to use a variety of instructional methods to best meet instructional objectives.

Instructional Development

Teachers often must develop and select their own teaching and curriculum materials. In developing a comprehensive curriculum, instructional objectives based upon both the performance and cognitive domain must be included. When developing curriculum materials, teachers must use the curriculum framework (CF) and student performance standards (SPS) contained in this program guide as a basis. These materials delineate minimum program content which must be presented for an approved vocational training program. However, they are not intended for use as a comprehensive curriculum. Be certain not to adapt the curriculum to available materials, but select only those materials which can be adapted to the curriculum.

Instructional Measurement

Teachers must select testing methods that support the instructional delivery system used. Teachers must be competent to develop, administer and evaluate written and performance type tests.

Student Admissions Criteria

Providing the student the opportunity to successfully complete a vocational education program, in any institution, should be the primary concern of the instructional effort. Therefore, it is very important to direct planning and effort into identifying and selecting students with excellent potential for success in the educational program and in the occupation. The school's primary task is to prepare people for fulltime, entry-level positions as technicians or, in the case of those with more experience, as managers.

The Course Code Directory, specifies grade levels at which occupational programs are offered. Specific student admissions criteria which is required by the State and local educational agencies for the Basic Cabinet Making and Millwork training program is illustrated as follows.

SPECIFIC ADMISSIONS CRITERIA

Minimum Age:	As required by state and local policy
Physical Requirements:	None
Special Requirements:	None
Minimum Basic Skills Math Level:	* NA
Minimum Basic Skills Language Level:	* NA

* This grade level requirement is specified in the Curriculum Framework and is applicable to postsecondary level programs of 450 hours or more only. There is no minimum basic skill requirement for secondary programs.

THE STUDENT PROFILE

Developing a student profile is an important step in program implementation. Attention should focus on student characteristics that can be remediated within a training program, but could create serious impediments to success in the vocational field. Typical of these would be deficiencies in communications and mathematical skills. The basic skill levels can be measured by testing. Test results can then be used to direct the student to more suitable training which matches his or her skill level, or to determine supplemental training which may be required to increase chances for student success.

High school and postsecondary vocational students can be admitted to a vocational program upon request if they meet any specified prerequisites, such as physical or basic skill requirements. Training programs should be accessible to as many students as possible. Training programs are designed to prepare students for employment upon graduation, or serve as prerequisite to a postsecondary program.

The community college can be more selective and establish stringent admission standards. This may be done by assessing applicants or by recruiting potential students who meet the established prerequisite requirements of the training. The program advisory committee can design a profile of the potentially successful student. The profile should contain a

list of qualities, traits and aptitudes that will indicate a higher potential for student success. Acceptable levels for these traits must also be determined. For example, the qualities deserving highest attention, mechanical ability and cognitive aptitude, are those which the educational program itself will not likely be able to influence, although these traits should have considerable weight in establishing the basic profile. Deficiencies in mathematical or communications skills may lend themselves to improvement through related instruction while the student is enrolled in the program. The following example illustrates specific qualities to consider when establishing the student profile:

Mechanic/Technician--Service

- Knowledge of basic tools and equipment used by mechanics/technicians
- Ability to analyze and solve mechanical and technical problems
- Ability to interpret written mechanical/technical materials
- Ability to interpret mechanical/technical drawings
- Mechanical dexterity

Mechanic/Technical Service Management

- Basic application of service
- Business skills
- Ability to work with people
- Communications skills
- Leadership

QUALIFYING AND PRETESTING

Assessing potential students for vocational programs is an integral part of the recruiting process since considerable amounts of time and money will be spent on students entering training. Recruiters must have a good idea of the candidate's basic aptitude. Whoever guides the candidate to the program needs to have knowledge of the student's interests, abilities and experience. These can be measured by a variety of assessment methods, which should be performed upon program entry. The assessment can help determine extent and level of training each individual should receive.

Assessment should determine the level at which the student can read, write, calculate mathmatics and understand the English language. It is appropriate for the program advisory committee and the school to develop some selection criteria based on minimum skill levels. These criteria should remain flexible in order to maximize educational opportunity for all applicants. Additionally, vocational educators must make every effort to serve the variety of "special needs" students and to eliminate sex-bias and stereotyping in all occupational areas.

ADVISORY COMMITTEE

It is imperative that representatives of industry be organized into an advisory committee. Constantly changing technological demands of our society will continue to stimulate changing industrial patterns. Therefore, effective use of program advisory committees is vital to the successful implementation of vocational training programs. Advisory committees provide expert technical advice which is not easily obtainable elsewhere, offer external support of policies and have tremendous public relations potential.

The most effective advisory committees are those whose members have mutual respect for each other's abilities and vested interest in the training program because of their need for trained workers. The program advisory committee is also one of the most effective means of facilitating placement. Its role can be:

- To contact local industry and encourage them to use the school's placement office as a means of filling jobs
- To develop an effective procedure for interviewing and evaluating potential employees suggested by the school
- To assist in gathering accurate and current job information as it becomes available

COUNSELING AND GUIDANCE

Counseling of students serves two purposes. It guides the student into the program and it supports enrolled students on a continuing basis throughout the program. Much day-to-day counseling will be the responsibility of the teacher. The teacher has the most contact with the student and is in a position to detect and correct a problem. Each student will encounter new problems as the program develops. The teacher's job is to work with the student to help identify problems and then strive for solutions. The teacher will provide much of the counseling that focuses on trade knowledge and skills.

The professional counselor cannot be expected to have the subject matter expertise of the primary teacher. The counselor, however, can focus on the student's needs related to other issues such as personal growth, interests and attitudes. The ideal situation will provide at least one counselor with current knowledge of industry standards for career counseling. A useful tool which should be used in the counseling process is the Career Merit Achievement Plan (Career MAP) which presents minimum instructional content keyed to student performance standards. Career MAPs are available for each industrial program area, and can be used to document student achievement, isolate student interests, talents and weaknesses. They are also useful for placement purposes. Information on Career MAPs may be obtained by contacting the Department of Education, Division of Vocational, Adult, and Community Education, (904) 488-0484.

STUDENT PLACEMENT

Implementing an effective placement system is integral to developing a successful vocational training program. **S.B.E. Rule 229.551 (3)(g)** requires 70 percent placement of students who have completed a vocational training program. Although placement is not always a problem, as with students already working in a related occupation, the placement program should place emphasis upon students who are seeking entry-level employment since these students have little or no experience with industry.

The task of the placement program is to locate job openings in the community. The placement coordinator or teacher must know each student's personal aims and interests in addition to the information stated on the achievement record. In many cases, teachers are the best source to match students to job openings because of their contacts with the industry advisory committee. Input concerning employment openings must come from individual business establishments in the community. The placement coordinator should introduce a student to as many suitable job openings as possible. Conversely, employers can then be expected to interview as many qualified candidates as possible.

Cooperative Education

COOPERATIVE EDUCATION APPLICABILITY

Normally, students will complete the entire program as full-time students before obtaining employment. However, there may be situations where students could be allowed to complete part of the program while employed in their occupational areas. At this time it is appropriate for the student to enroll in industrial cooperative education (ICE). Guidelines for this training plan are provided in the "Industrial Cooperative Education Program Guide," published by the Division of Vocational, Adult, and Community Education, Order # IE 508 BK 87.

Industrial cooperative education is a method of instruction designed to prepare students for jobs in the community. This method is a joint effort between the school and the business community. Student trainees receive a combination of instruction in the classroom and related on-the-job training through employment. Learning experiences are jointly planned and supervised by the teacher and the employer. Cooperative education is relevant to the needs of the student preparing for a work role, and will help the student to achieve success and personal satisfaction as the transition is made from school to the constantly changing world of work.

Cooperative education is defined in the Federal Register, Volume 39, number 143, Vocational Education, Section 102.96, as a program ". . . to prepare students for employment, through: (a) providing meaningful work experiences combined with formal education enabling students to acquire knowledge, skills, and appropriate attitudes, (b) removing the artificial barriers which separate work and education, (c) involving educators with employers, creating interaction whereby the needs and problems of both are made known, thereby making it possible for occupational curricula to be revised to reflect current needs in various occupations . . . ."

PURPOSE

Cooperative Education is for persons who, through written cooperative arrangements between the school and employers, receive instruction, including required academic courses and related instruction by alternation of study in school with a job in any industrial occupational field. These two experiences must be planned and supervised by the school and employers so that each contributes to the student's education and employability. Work periods and school attendance may be on alternative half days, full days, weeks or other periods of time to fulfill objectives of the cooperative education program.

GOALS AND OBJECTIVES

The primary goal of the cooperative method of vocational education is to prepare skilled, responsible individuals who can assume a productive role in the community. Specific objectives to meet the primary goal are:

- To prepare individuals for employment, adjustment and advancement in specified occupations or occupational areas (primary objective)
- To provide an understanding of the contribution of work to the social and economic welfare of our nation
- To provide students with an understanding and appreciation of the American free enterprise system
- To foster an awareness of the civic, social and moral responsibilities of individuals to society

- To stimulate students' interest in their chosen occupational fields and provide an understanding of the opportunities in each field
- To provide training that results in increased efficiency in performing job tasks
- To provide curriculum which is sensitive and adaptable to changes in occupational practices and procedures as they are affected by societal, economic, technical and educational developments
- To strive to develop a greater appreciation of the value of specifically trained personnel among employers, employees and consumers
- To reinforce skills learned in the school laboratory
- To provide experiences on tools and equipment not available in the school laboratory
- To supplement and broaden the school curriculum into areas not otherwise available

Student Organization Participation

Vocational student organizations operate pursuant to federal and state laws, which authorize them as viable components of vocational education programs. According to federal regulations, the vocational education program of instruction may include activities of vocational student organizations which are an integral part of the vocational instruction offered and which are supervised by vocational education personnel. The **S.B.E.** Rules authorize vocational student organizations as an integral part of the vocational education program as stated in **S.B.E. 6A-6.064 (7)** and **6A-6.065 (8).**

VOCATIONAL INDUSTRIAL CLUBS OF AMERICA (VICA)

VICA is an organization for secondary or postsecondary students enrolled in trade and industrial education programs in high schools, area vocational technical centers and junior and community colleges. It is the only national and international organization for trade and industrial students. The organization is designed to expand and enrich opportunities for leadership, social awareness and civic responsibility in vocational students.

Students who participate in VICA activities are often better prepared for the world of work. They acquire knowledge of the many opportunities available in their chosen careers and become aware of the value of their

contributions to society. They are also given opportunities to develop and utilize their talents and abilities in ways that otherwise would not be available to them.

BENEFITS OF VICA MEMBERSHIP FOR THE STUDENT

Membership in VICA offers the student the opportunity for growth and development in the following areas:

School and Community Service Activities Students in VICA become involved in various school and/or community services. These may include clothing or food collections for the needy, donation of time and service to the elderly and participation in fund raisers or similar activities.

Social Interaction with Fellow Students Activities are also available that offer students time for relaxation and fun. Social activities of this type may be held on a regular basis. They might be held on the school campus during school hours, or off campus after school. More formal functions would include end of the year award banquets or industry/employer appreciation dinner banquets.

Competition in Skill and Leadership Contests VICA offers various contests in all the skill and leadership areas it serves. Often, teachers identify talented students who represent their school in regional competitions. However, any student member of VICA may compete. Instructors should conduct planned contests within their trade areas. This also pertains to leadership areas. First and second place regional winners then move on to the state level contest. The state winners then compete at the national level of the United States Skill Olympics.

INSTRUCTIONAL RESOURCES

STUDENT REFERENCE MATERIALS

Necessary instructional texts or pertinent material should be available for each student to satisfy training objectives. When textbooks are used, the copyright date should be as current as possible.

SERVICE MANUALS

Manuals with current manufacturer's service procedures and specifications should be available. These manuals must be located where students can use them while working in the shop area.

PERIODICALS

Current general and technical magazines and newspapers should be available for student and instructor use.

The following list of suggested resources is organized under each outcome shown in the curriculum framework. These resources have been recommended by instructors and program administrators through statewide surveys.

01.0 DEMONSTRATE PROFICIENCY IN APPLYING SAFETY RULES AND PROCEDURES

TITLE, AUTHOR, ORDER#	PUBLISHER	TYPE
Hand Held Power Tool Safety	ABRAYAS FILMS	film
Jointer Safety	ABRAYAS FILMS	film
Planer Disc Sander Safety	ABRAYAS FILMS	film
Power Equipment Safety	ABRAYAS FILMS	film
Radial Arm/Band Saw Safety	ABRAYAS FILMS	film
Shaper/Scroll Saw Safety	ABRAYAS FILMS	film
Table Saw Safety	ABRAYAS FILMS	film
Wood Lathe Safety	ABRAYAS FILMS	film
Cabinet Making and Millwork John L. Feirer	CHARLES A. BENNETT COMPANY, INC.	text
Cabinetmaking and Millwork Gaspar Lewis	DELMAR PUBLISHING	text
Cabinetmaking, Patternmaking and Millwork Gaspar J. Lewis	DELMAR PUBLISHING	text
Carpentry Leonard Koel	AMERICAN TECHNICAL PUBLICATIONS, INC.	text
Florida Industrial Arts Safety Guide (IA 062 BK 83)	FLORIDA DEPARTMENT OF EDUCATION, DIVISION OF VOCATIONAL EDUCATION	text
Residential Construction and Design Frederick Uhlen Hop	PRENTICE-HALL, Division of Simon & Schuster	text
Safety Series Set: Safety Guide and Posters (IA 004 SS 83)	FLORIDA DEPARTMENT OF EDUCATION, DIVISION OF VOCATIONAL EDUCATION	text
Safety in Woodworking EW1177	PRENTICE-HALL MEDIA	text & film

02.0 DEMONSTRATE PROFICIENCY USING HAND TOOLS

TITLE, AUTHOR, ORDER#	PUBLISHER	TYPE
Carpentry Gaspar J. Lewis	DELMAR PUBLISHING	text
Fundamentals of Carpentry Tools, Materials, Practices Walter E. Durbahn	AMERICAN TECHNICAL PUBLICATIONS, INC.	text
Stanley Tool Guide	DIVISION OF THE STANLEY WORKS, EDUCATIONAL DEPARTMENT	text
Basic Cabinetmaking EW1121	PRENTICE-HALL MEDIA	text & film
Basic Measurement Math EW1039	PRENTICE-HALL MEDIA	text & film
Woodworking: Hand Tool Operations EW936	PRENTICE-HALL MEDIA	text & film
Woodworking Hand Tools	D. C. A., INC.	trans-parency

03.0 DEMONSTRATE PROFICIENCY OPERATING PORTABLE POWER TOOLS

TITLE, AUTHOR, ORDER#	PUBLISHER	TYPE
Tools and Their Uses U.S. Navy	DOVER PUBLICATIONS, INC.	
Portable Power Tools McDonnell	DELMAR PUBLISHING	text

04.0 DEMONSTRATE PROFICIENCY OPERATING STATIONARY POWER WOODWORKING MACHINES

TITLE, AUTHOR, ORDER#	PUBLISHER	TYPE
Additional Types	D. C. A., INC.	film
Additional Wood and Metalworking Operations	D. C. A., INC.	film
Adjusting the Blade Guides	D. C. A., INC.	film
Beveling, Chamfering and Rabbetting	D. C. A., INC.	film
Controls and Adjustments, Part I	D. C. A., INC.	film
Controls and Adjustments, Part II	D. C. A., INC.	film
Controls and Basic Operations	D. C. A., INC.	film
Curve Cutting	D. C. A., INC.	film
Face Plate Turning	D. C. A., INC.	film
How It Works	D. C. A., INC.	film
Parts and Controls	D. C. A., INC.	film
Precautions	D. C. A., INC.	film
Preparing to Shape	D. C. A., INC.	film
Principle of Operation and Installing the Blade	D. C. A., INC.	film
Radial Arm Saw - Basic Operations, Part I	D. C. A., INC.	film
Radial Arm Saw - Basic Operations, Part II	D. C. A., INC.	film
Radial Arm Saw - Dado Cutter Operations	D. C. A., INC.	film

Radial Arm Saw - Miscellaneous Operations	D. C. A., INC.	film
Radial Arm Saw - Nomenclature and Controls	D. C. A., INC.	film
Safe Use of the Router	ABRAYAS FILMS	film
Sawing and Dadoing with Saw Blade	D. C. A., INC.	film
Scroll Saw - Cutting Techniques	D. C. A., INC.	film
Scroll Saw - Using Scroll Saw Accessories	D. C. A., INC.	film
Selecting and Changing the Abrasive Belt	D. C. A., INC.	film
Setting Up Work	D. C. A., INC.	film
Shaping with Collars	D. C. A., INC.	film
Shaping with the Fence	D. C. A., INC.	film
Sizes and Nomenclature	D. C. A., INC.	film
Special Applications	D. C. A., INC.	film
Special Cutter Applications	D. C. A., INC.	film
Special Fixtures	D. C. A., INC.	film
Special Operation	D. C. A., INC.	film
Special Sawing Operations	D. C. A., INC.	film
Straight Cutting	D. C. A., INC.	film
The 13 in. x 6 in. Planer	D. C. A., INC.	film
Turning Between Centers	D. C. A., INC.	film
Turning Chisels	D. C. A., INC.	film
Using the Dado Set	D. C. A., INC.	film
Using the Disc Sander, Part I	D. C. A., INC.	film

Using the Disc Sander, Part II	D. C. A., INC.	film
Using the Disc Sander, Part III	D. C. A., INC.	film
Using the Moulding Cutterhead	D. C. A., INC.	film
Various Sizes	D. C. A., INC.	film
Various Ways to Shape	D. C. A., INC.	film
Woodworking Operations	D. C. A., INC.	film
Woodworking Technology James J. Hammond, Edward T. Donnelly and Walter R. Harrod	McKNIGHT & McKNIGHT PUBLISHING COMPANY	text
Power Machines: Drill Press EW1113	PRENTICE-HALL MEDIA	text & film
Power Machines: The Bandsaw EW1114	PRENTICE-HALL MEDIA	text & film
Power Machines: The Jointer EW1174	PRENTICE-HALL MEDIA	text & film
Power Machines: The Surface Planer EW1171	PRENTICE-HALL MEDIA	text & film
Power Tools: The Router EW1116	PRENTICE-HALL MEDIA	text & film
Woodworking: Power Machines EW1170	PRENTICE-HALL MEDIA	text & film
Woodworking: Power Saws EW938	PRENTICE-HALL MEDIA	text & film
Woodworking: Power Tools EW1115	PRENTICE-HALL MEDIA	text & film
Woodworking Power Tools	D. C. A., INC.	trans-parency
Abrayas Basic Courseware, Safety Series (Power Equipment)	ABRAYAS FILMS	video

05.0 DEMONSTRATE PROFICIENCY IN PLANNING, DESIGNING AND LAYOUT OF CABINETS AND CASEWORK

TITLE, AUTHOR, ORDER#	PUBLISHER	TYPE
Blueprint Reading Skills - Introduction and Overview	PRENTICE-HALL, Division of Simon & Schuster	film
Blueprint Reading For Construction (Residential and Commercial) Walter C. Brown	GOODHEART-WILLCOX COMPANY, INC.	text
Furniture and Cabinet Making John Feirer	BENNETT PUBLISHING COMPANY	text
How to Read Blueprints F. W. Dodge	McGRAW HILL BOOK COMPANY	text
Construction Estimating EW992	PRENTICE-HALL MEDIA	text & film
Lumber Grading EW1344	PRENTICE-HALL MEDIA	text & film
Wood: The Unique Material EW1122	PRENTICE-HALL MEDIA	text & film
Woodworking: Layout EW916	PRENTICE-HALL MEDIA	text & film

06.0 DEMONSTRATE PROFICIENCY IN CONSTRUCTING AND ASSEMBLING CABINET COMPONENTS

TITLE, AUTHOR, ORDER#	PUBLISHER	TYPE
Cabinetmaking - Drawers	BERGWALL PRODUCTIONS	film
Cabinetmaking - Top Layout	BERGWALL PRODUCTIONS	film
Installing Cabinets	PRENTICE-HALL MEDIA	film

Designing, Building and Installing Custom Cabinets for the House G. William Scherer	PRENTICE-HALL, Division of Simon & Schuster	text
The Complete Guide to Modern Cabinet Making James N. Christ	PRENTICE-HALL, Division of Simon & Schuster	text
Woodworking: Assembly EW917	PRENTICE-HALL MEDIA	text & film

07.0 DEMONSTRATE PROFICIENCY IN CONSTRUCTING JOINTS

TITLE, AUTHOR, ORDER#	PUBLISHER	TYPE
Cabinetmaking from Design to Finish Byron W. Maguire	PRENTICE-HALL, Division of Simon & Schuster	text
Woodwork Joints Charles Hayward	STERLING PUBLISHING	text
Woodworking: Constructing Joints EW1124	PRENTICE-HALL MEDIA	text & film
Woodworking: Producing Joints EW1120	PRENTICE-HALL MEDIA	text & film

08.0 DEMONSTRATE ABILITY TO FASTEN STOCK AND JOINTS

TITLE, AUTHOR, ORDER#	PUBLISHER	TYPE

NONE

09.0 DEMONSTRATE PROFICIENCY IN CONSTRUCTING AND INSTALLING CABINET DRAWERS AND DOORS

TITLE, AUTHOR, ORDER#	PUBLISHER	TYPE
NONE		

10.0 DEMONSTRATE PROFICIENCY IN APPLYING LAMINATES

TITLE, AUTHOR, ORDER#	PUBLISHER	TYPE
Installing Plastic Laminate Counter Tops	PRENTICE-HALL, Division of Simon & Schuster	film

11.0 DEMONSTRATE ABILITY TO FINISH SURFACES

TITLE, AUTHOR, ORDER#	PUBLISHER	TYPE
Wood Finishers Handbook Sam Allen	STERLING PUBLISHING	text
Stains and Clear Finishing EW1069	PRENTICE-HALL MEDIA	text & film
Woodworking: Finishing EW918	PRENTICE-HALL MEDIA	text & film

12.0 DEMONSTRATE EMPLOYABILITY SKILLS

TITLE, AUTHOR, ORDER#	PUBLISHER	TYPE
Applying for a Job - Instructor's Guide (CE 004 BK 81)	FLORIDA DEPARTMENT OF EDUCATION, DIVISION OF VOCATIONAL EDUCATION	instructor text

Choosing an Occupation - Instructor's Guide (CE 010 BK 84)	FLORIDA DEPARTMENT OF EDUCATION, DIVISION OF VOCATIONAL EDUCATION	instructor text
Employability Skills Leader's Guide: In-service Workshop (CE 205 BK 85)	FLORIDA DEPARTMENT OF EDUCATION, DIVISION OF VOCATIONAL EDUCATION	instructor text
Good Work - Instructor's Guide (CE 018 BK 84)	FLORIDA DEPARTMENT OF EDUCATION, DIVISION OF VOCATIONAL EDUCATION	instructor text
Job Changes - Instructor's Guide (CE 025 BK 84)	FLORIDA DEPARTMENT OF EDUCATION, DIVISION OF VOCATIONAL EDUCATION	instructor text
Personal Finances - Instructor's Guide (CE 030 BK 84)	FLORIDA DEPARTMENT OF EDUCATION, DIVISION OF VOCATIONAL EDUCATION	instructor text
Your Job Search - Instructor's Guide (CE 038 BK 84)	FLORIDA DEPARTMENT OF EDUCATION, DIVISION OF VOCATIONAL EDUCATION	instructor text
Employability Skills Series (ESS) (CE 001 SS 81)	FLORIDA DEPARTMENT OF EDUCATION, DIVISION OF VOCATIONAL EDUCATION	module
Applying for a Job - Student Guide (CE 003 BK 79)	FLORIDA DEPARTMENT OF EDUCATION, DIVISION OF VOCATIONAL EDUCATION	student text
Choosing an Occupation - Student Guide (CE 009 BK 84)	FLORIDA DEPARTMENT OF EDUCATION, DIVISION OF VOCATIONAL EDUCATION	student text
Employability Skills Participant's Guide: In-service Workshop (CE 074 BK 84)	FLORIDA DEPARTMENT OF EDUCATION, DIVISION OF VOCATIONAL EDUCATION	student text

Good Work - Student Guide (CE 017 BK 84)	FLORIDA DEPARTMENT OF EDUCATION, DIVISION OF VOCATIONAL EDUCATION	student text
Job Changes - Student Guide (CE 024 BK 84)	FLORIDA DEPARTMENT OF EDUCATION, DIVISION OF VOCATIONAL EDUCATION	student text
Personal Finances - Student Guide (CE 029 BK 83)	FLORIDA DEPARTMENT OF EDUCATION, DIVISION OF VOCATIONAL EDUCATION	student text
Your Job Search - Student Guide (CE 037 BK 84)	FLORIDA DEPARTMENT OF EDUCATION, DIVISION OF VOCATIONAL EDUCATION	student text
A Guide to Employability Skills Materials (CE 042 BK 85)	FLORIDA DEPARTMENT OF EDUCATION, DIVISION OF VOCATIONAL EDUCATION	text
ESS for Success (CE 150 BK 84)	FLORIDA DEPARTMENT OF EDUCATION, DIVISION OF VOCATIONAL EDUCATION	text

13.0 DEMONSTRATE AN UNDERSTANDING OF ENTREPRENEURSHIP

TITLE, AUTHOR, ORDER#	PUBLISHER	TYPE

NONE

PUBLISHERS' ADDRESSES

ABRAYAS FILMS
Post Office Box 1416
Eugene, OR 97440

AMERICAN TECHNICAL PUBLICATIONS, INC.
1155 West 175th Street
Homewood, IL 60430
800-323-3471

BENNETT PUBLISHING COMPANY
866 Third Avenue
New York, NY 10022
309-691-4454

BERGWALL PRODUCTIONS
Post Office Box 238
Garden City, NY 11530
800-645-3565

CHARLES A. BENNETT COMPANY, INC.
809 West Detweiller Drive
Peoria, IL 61615
309-691-4454

D. C. A., INC.
424 Valley Road
Warrington, PA 18976-2522
215-343-2020

DELMAR PUBLISHING
2 Computer Drive West
Albany, NY 12212
518-459-1150

DIVISION OF THE STANLEY WORKS, EDUCATIONAL DEPARTMENT
1000 Stanley Drive, Box 7000
New Britain, CT 06050
203-225-5111

DOVER PUBLICATIONS, INC.
180 Varick Street
New York, NY 10014
212-255-3755

FLORIDA DEPARTMENT OF EDUCATION, DIVISION OF VOCATIONAL EDUCATION
Knott Building
Tallahassee, FL 32399

GOODHEART-WILLCOX COMPANY, INC.
123 West Taft Drive
South Holland, IL 60473
800-323-0440

McGRAW HILL BOOK COMPANY
1221 Avenue of the Americas
New York, NY 10020
212-512-2000

McKNIGHT & McKNIGHT PUBLISHING COMPANY
809 West Detweiller
Peoria, IL 61615
800-477-0682

PRENTICE-HALL MEDIA
90 South Bedford Road
Mt. Kisco, NY 10549
914-631-8300

PRENTICE-HALL
Division of Simon & Schuster
Route 9 West
Englewood Cliffs, NJ 07632
201-592-2000

STERLING PUBLISHING
Two Park Avenue
New York, NY 10016

VOCATIONAL MEDIA ASSOCIATES
Mount Kisco, NY 10549

FACILITIES

Facility Design Recommendations

Facilities, tools and equipment are essential parts of training programs, and must be designed to meet State program standard requirements and instructional objectives. This section of the Program Guide contains information for setting up classroom and laboratory facilities. Facility design criteria and space requirements are specified in **S.B.E. Section B, Chapter 6A-2.**

TEACHING FACILITIES

The instructional environment should duplicate, as closely as possible, the real-life work environment the student will enter after graduation. The more the school resembles the industrial environment, the easier it will be for the student to make the transition from school to work. Tools, supplies and equipment should conform to local industry standards. The teacher should actively pursue supplemental resources to expose the students to state-of-the-art equipment.

All facilities should include classroom space, as well as space for regular classroom equipment such as audio-visual equipment. Laboratory facilities should be equipped with work stations or workbenches, tables, chairs and special training aids to demonstrate basic principles and theory. They should contain enough tools and equipment to enable several students to work individually on the same learning activity.

UPDATING FACILITIES

To keep pace with technological changes and improvements, facilities must be updated on a continuing basis. When planning facilities, priority must be to provide space which will fulfill changing needs of the instructional program. Buildings should be designed with flexibility to expand in order to accomodate future program changes and to allow for greater ease of facility updating. The program advisory committee should be used to assist the school in establishing priorities for obtaining facilities, tools and equipment. Careful planning and analysis of current and future needs will lead to the establishment of an effective training environment.

SCHOOL FACILITIES

Basic Cabinet Making and Millwork Classroom/Laboratory Areas

This section of the program guide provides guidelines for Basic Cabinet Making and Millwork program facilities. All vocational programs must meet additional requirements specified in **S.B.E. Section B, Chapter 6 A-2.**

Classroom/laboratory areas should be designed to accommodate oversized machinery, equipment, materials and holding tables. Each area should be equipped with special lighting, as necessary. The area should provide oversized openings equipped with service entry doors to accommodate the movement and transporting of oversized equipment, materials and products.

The laboratory should include electrical outlets providing 110 volts at each work station. Electrical outlets should be permanently mounted to the work station benches. Additional electrical outlets should be installed along the walls and in the center areas of the laboratory. Electrical outlets in the center areas should be mounted on posts between the ceiling and work stations or on pull down extension systems. Special electrical wiring may be required to supply power requirements of specialized equipment. All electrical service must be installed according to local building code requirements.

CLASSROOM/LABORATORY FACILITIES

Space requirements for **new** facility construction for this program are specified in **S.B.E. Rule 6A-2.032** as shown below.

NEW FACILITIES
BASIC CABINET MAKING AND MILLWORK

Occupant Design Stations	20
Net Square Feet Per Occupant	
Minimum	162
Normal	171
Maximum	180
Total Net Square Feet	
Minimum	3240
Normal	3420
Maximum	3600

WORK STATION ARRANGEMENT

The arrangement of work stations and specialized equipment depends upon the general layout of the facilities, but careful consideration must be given to convenience to entrances and exits, easy movement among work stations and a tool/storage areas. The area should have a counter convenient to work stations. Overall layout of the facility should be planned so that the location of entrances and exits permits a logical flow of work in progress. One of the most critical factors in planning a facility is the arrangement of work stations to obtain a safe, efficient traffic pattern.

ADDITIONAL FACILITY CONSIDERATIONS

Training Stations

Training stations and live work areas must be available in the type and number required to meet program goals and performance objectives.

Instructional Area

A classroom or designated area of the laboratory should be available for lecture, instruction, viewing audio visual materials and other nonshop activities.

Personal Tool/Equipment Storage Area

A secure storage room or area should be provided, with enough shelf space for student supplies/tool boxes and floor space for equipment.

General Storage

Storage areas for tools, parts, supplies and machines must be sufficient to support the activities outlined in the program goals and performance objectives.

Office Space

An area separate from the classroom and laboratory should be available and convenient for use by the instructor(s) as an office.

Maintenance

A regular facilities maintenance program must be implemented to ensure that equipment and facilities are safe and usable to meet instructional needs.

Housekeeping

The classroom, laboratory and support area(s) must be kept clean and orderly.

Ventilation

A fume/dust removal system should be in place and operable. When appropriate, heating and cooling systems should be used to provide sufficient comfort for learning. Ventilation requirements are stated in **S.B.E. Rule 6A-2.066.**

First Aid

A first aid station must be in place, well marked and complete with appropriate supplies.

Support Facilities

Restrooms, clean-up areas and lockers convenient to the shop should be available for students.

Safety

The facilities must meet all Occupational Safety and Health Administration (OSHA) safety standards, where applicable.

Facility Evaluation

The program advisory committee should be asked to conduct an annual evaluation of the facilities to insure the program's continuing capability to meet instructional objectives.

Safety, Maintenance and Liability

SAFETY

S.B.E. Rule 6A-2.097

The Florida State Board of Education establishes rules for the operation of public schools. **Part III, Section B, Chapter 6A-2** of the State Board of Education Rules contains the standards for existing educational facilities. Subsections deal with the entire school facility in regard to such topics as electrical equipment, flammable materials, ventilation, fire safety, storage and illumination. Subsection 6A-2.097 contains safety regulations pertaining to vocational classes.

The statute requires 100 percent protection of every student and teacher participating in laboratory work wherein the type of activities listed in the statute above are conducted. This will include: demonstration by teachers or students, students and teachers present in a room or laboratory when students are engaged in make-up work or project work, and when anyone is using tools for construction or repair work involving the shaping or cutting of any solid materials.

Rules and regulations for an eye protection program should be organized and distributed to teachers, students and school personnel. Safety devices should be worn by those participating in the activity and by those who are observers or who may be in close proximity.

Marking of Hazardous Areas

Floors, walls, posts, stationary objects, machinery and equipment should be properly painted, marked, coded or identified, according to recommended safety practices of OSHA, the school board and industry.

Emergency Procedure For Injuries

The following procedures are recommended in the event of an injury or sudden illness in a student:

- Refer to the red "fire or medical emergency" signs posted in appropriate areas.
- Provide immediate first aid if so qualified.
- Notify appropriate personnel to advise them of the problem. They can also contact emergency trained personnel on campus.
- A conscious person has the right to refuse treatment and/or transportation to a medical facility.
- Advise students that they will be financially responsible for ambulance and emergency care.
- The paramedics will assume patient care upon arrival.
- If emergency transportation is not indicated, the student may spend time at the clinic, be allowed to go home or go to a medical facility.
- Be sure to complete the appropriate student injury form for any and all accidents or sudden illness.

MAINTENANCE

Schools should have the necessary facilities for routine maintenance. Special maintenance requirements for this program concern the hand and power tools and machines. Arrangements must be made to accomplish routine and non-routine maintenance of hand and power tools and cutting and shaping machines. Arrangements can be made through the school's shop or an outside agency.

VOCATIONAL TEACHER LIABILITY

Liability of Teacher and School Board

Negligence of vocational education teachers can cause unnecessary injury, and may result in teacher and school district liability. Vocational teachers are recommended to carry personal liability insurance. To reduce the risk of liability and injuries, the following suggestions are provided.

- Follow accepted policies of the school board.
- Do not allow students to use equipment or tools which have not been approved by the administration and Board of Education.
- Establish safety rules and enforce them.
- Do not leave the shop/laboratory while students are working.
- Do not permit non-enrolled students to use the shop/laboratory.
- Do not allow students to use machines or tools for which instruction has not been given.
- Do not approve unsupervised student activities inside or outside the shop/laboratory.
- Prepare accident forms for all accidents.
- Regularly inspect the workplace and equipment for defects or potential hazards and maintain documentation of unserviceable or hazardous items.
- Consider age, maturity, skill and ability of students when providing instruction and supervision.
- Adminster safety tests to students upon completion of the demonstration of a specific machine, tool or process and keep documentation on file in your office.
- Require all students to wear eye protection devices, when appropriate, for laboratory activities.

SUGGESTED EQUIPMENT LIST

General Classroom Equipment

DESCRIPTION

Chalkboard

Bulletin board

Bookcases

Cabinet-storage

Student study stations

Audio-visual equipment as needed

Laboratory Tools and Equipment

These tools and items of equipment are normally used in this program. Equipment items are listed under each outcome, corresponding to the curriculum framework. Consumable supplies should be readily available to assure continuous instruction. Consumable supplies such as nails, wood putty and chalk are not contained in the equipment list.

01.0 DEMONSTRATE PROFICIENCY IN APPLYING SAFETY RULES AND PROCEDURES

DESCRIPTION

Fire extinguishers
First aid kit
Safety glasses

02.0 DEMONSTRATE PROFICIENCY USING HAND TOOLS

DESCRIPTION

Awl, scratch
Bit, auger
Bit, brad point set
Bit, expansive
Bit, hole saw
Bit, lockset
Bit, screwdriver
Bit, skip auger
Bit, twist, set
Brace, hand
Brooms, hand
Brooms, push
Brushes, bench
Chisel, cold
Chisel, wood
Clamp, 'C'
Clamp, bench, bar, 4 ft. to 10 ft.
Clamp, bench, twin rod
Clamp, corner, set of four
Clamp, hand, screw
Clamp, spring
Compass
Cornering tool
Countersink
Dividers
Drill, hand
Drill, push
File, cant
File, flat
File, half-round
File, knife
File, round
File, slitting
File, square
File, three-cornered
Gage, butt
Gage, marking
Gun, caulking
Hammer, ball-peen
Hammer, curved claw, 13 1/2 oz.
Hammer, rubber mallet
Hammer, soft-faced
Hammer, straight claw
Knife, putty
Knife, utility
Ladder, step

Level, carpenter's
Level, sliding T-bevel
Level, spirit
Level, torpedo
Nail claw (cat's paw)
Nail set
Oilstone (whetstone)
Plane, block
Plane, jack
Pliers, channellock
Pliers, diagonal
Pliers, needle nose
Pliers, slip joint
Plumb bob
Protractor
Pry (crowbar)
Punch, magnetic
Punch, pin
Punch, straight
Rasp, wood, #50 and 49
Rule, bench
Rule, straight
Saw, backsaw
Saw, coping
Saw, crosscut
Saw, dovetail
Saw, keyhole
Saw, rip
Scraper
Screwdriver, flatblade
Screwdriver, off-set
Screwdriver, phillips
Scriber(s)
Snips, tin
Square, combination
Square, framing
Square, try
Straightedge
Tape, measuring
Tool box
Trammel points
Vise grips
Vise, utility
Vise, wood
Wrench, adjustable
Wrench, box end
Wrench, combination
Wrench, hex head (allen)
Wrench, open-end
Wrench, socket

03.0 DEMONSTRATE PROFICIENCY OPERATING PORTABLE POWER TOOLS

DESCRIPTION

Air compressor
Air corrugated fastener tool
Air nail gun, 4 and 6 penny
Air pin gun, 1 1/4 in.
Air staple gun, various sizes
Drill, electric, 3/8 in. reversible
Plane, power, 3 inch
Router, 1 or 2 HP
Sander, belt
Sander, vibrator
Saw, circular, 7 inch
Saw, saber
Screwdriver, power

04.0 DEMONSTRATE PROFICIENCY OPERATING STATIONARY POWER WOODWORKING MACHINES

DESCRIPTION

Drill, press
Grinder, bench
Jointer, 8 in. or 16 in.
Mortis, electric
Plane, electric, 18 in. or 24 in.
Router, overhead, floor model
Router, table
Sander, belt, bench mounted
Sander, disc, bench mounted
Sander, drum, bench mounted
Sander, spindle, bench mounted
Saw, band, 14 in., 20 in. or 36 in.
Saw, electric miter
Saw, jig, floor model
Saw, miter
Saw, plywood, panel, with frame/tracks
Saw, radial arm, 10 in., 12 in. or 14 in.
Saw, table, 10 in.
Shaper, spindle
Table, sanding
Tenoner

05.0 DEMONSTRATE PROFICIENCY IN PLANNING, DESIGNING AND LAYOUT OF CABINETS AND CASEWORK

DESCRIPTION

Drafting equipment set, including 30, 45 and 60 degree triangles, compass, pencils and T square
Drafting tables
Scale, architect's

06.0 DEMONSTRATE PROFICIENCY IN CONSTRUCTING AND ASSEMBLING CABINET COMPONENTS

DESCRIPTION

Work benches and layout tables

07.0 DEMONSTRATE PROFICIENCY IN CONSTRUCTING JOINTS

DESCRIPTION

Dowling jig
Saw, Norsaw, floor model

08.0 DEMONSTRATE ABILITY TO FASTEN STOCK AND JOINTS

DESCRIPTION

Bit, forstner
Bit, plug cutters

09.0 DEMONSTRATE PROFICIENCY IN CONSTRUCTING AND INSTALLING CABINET DRAWERS AND DOORS

DESCRIPTION

Hinge installation tools, European type

10.0 DEMONSTRATE PROFICIENCY IN APPLYING LAMINATES

DESCRIPTION

Edge bander
Mica routers with complete set of cutters
Mica slitter, hand
Pot, contact cement, 2 1/2 gallons with hoses and gages
Roller, J
Roller, T
Router, inlay
Router, seam
Router, under scribe

11.0 DEMONSTRATE ABILITY TO FINISH SURFACES

DESCRIPTION

Air compressor, 3 HP
Brushes, paint, assorted
Spray booth
Spray guns with complete set of nozzles and airhose

12.0 DEMONSTRATE EMPLOYABILITY SKILLS

DESCRIPTION

Time clock

13.0 DEMONSTRATE AN UNDERSTANDING OF ENTREPRENEURSHIP

DESCRIPTION

NONE

PROFESSIONAL DEVELOPMENT

Teacher Technical Updating

Technical updating workshops are scheduled periodically throughout the State, usually in the summer months. Teachers should take advantage of the opportunity to attend the cabinet making technical update workshops when they are held. All instructional staff are encouraged to participate in as many training opportunities as possible.

Teachers should seek opportunities with local companies to maintain currency with industry trends. During periods when school is not in session, teachers are encouraged to make arrangements to return to industry for suitable involvement in their area of expertise.

Membership in professional associations offers vocational educators an enormous range of opportunities for working together to strengthen the field and to develop personal competence and satisfaction in work. The associations have similar goals and activities. They seek excellence in program content by means of joint efforts among members, communications that keep members current, forums for the discussion of issues in the field, useful and stimulating publications and sound professional growth experiences at local, state, regional and national meetings and annual conventions. They are concerned with increasing public understanding and support of the field. Teachers are encouraged to maintain affiliation with professional organizations. A list of professional organizations follows this section of the guide.

Teacher Standards

As a prerequisite to certification, teachers must have the required years of experience in the appropriate technical field as defined in the certification standards. For the Basic Cabinet Making program, the requirements are six years continuous experience in cabinet making. The teacher is then judged qualified to teach upon meeting one of the following criteria: (1) regular or temporary Florida teacher's certificate with appropriate coverage, (2) Approval of local school board consistent with adopted school policy or (3) regular or temporary Florida teacher's certificate with other than appropriate coverage (has met all occupational experience requirements prescribed as a prerequisite to appropriate certification and has been approved by the school board to teach

out-of-field.) Refer to the Curriculum Framework for this program to determine the appropriate occupational specialization coverage required for certification.

Instructional staff must have technical competency and meet all State and local requirements for certification. Instructors should hold current, nationally recognized certification in the subject areas taught, if awarded. Beginning teachers must be enrolled in the State Beginning Teacher Program.

A systematic method of obtaining "substitute" instructors, approved by the school board, should be used to assure instructional continuity. An orientation session for substitutes should be held on a regular basis. The substitute should be a competent instructor in the occupational area and specific competencies taught.

Professional Organizations and Support Services

EDUCATION ORGANIZATIONS

AMERICAN VOCATIONAL ASSOCIATION (AVA)
1410 King Street
Alexandria, VA 22314
800-826-9972

FLORIDA ASSOCIATION FOR TRADE AND INDUSTRIAL EDUCATION, INC. (FATIE)
Florida Department of Education
Industrial Education - Vocational Division
Knott Building
Tallahassee, FL 32399
904-488-0484

FLORIDA VOCATIONAL ASSOCIATION (FVA)
1420 North Paul Russell Road
Tallahassee, FL 32399
904-878-6860

FLORIDA VOCATIONAL INDUSTRIAL CLUBS OF AMERICA (VICA)
Florida Department of Education
Knott Building
Tallahassee, FL 32399
904-488-0484

TRADE ORGANIZATIONS

This list contains trade associations and technical societies. Many offer training programs of some sort, either directly or through their member companies. Specific details should be requested in writing.

UNITED BROTHERHOOD OF CARPENTERS AND JOINERS OF AMERICA (UBC)
101 Constitution Avenue, Northwest
Washington, DC 20001
202-546-6206

AMERICAN BUILDING CONTRACTORS ASSOCIATION (ABCA)
11100 Valley Boulevard, Suite 120
Elmonte, CA 91731
818-401-0071

AMERICAN INSTITUTE OF CONSTRUCTORS (AIC)
20 South Front Street
Columbus, OH 43215
614-464-0598

AMERICAN SOCIETY OF PROFESSIONAL ESTIMATORS (ASPE)
6911 Richmond Highway, Suite 230
Alexandria, VA 22306
703-765-2700

AMERICAN SUBCONTRACTORS ASSOCIATION (ASA)
1004 Duke Street
Alexandria, VA 22314
703-684-3450

ASSOCIATED BUILDERS AND CONTRACTORS (ABC)
729 15th Street, Northwest
Washington DC 20005
202-637-8800

ASSOCIATED GENERAL CONTRACTORS OF AMERICA (AGC)
1957 East Street, Northwest
Washington, DC 20006
202-393-2040

ASSOCIATED SPECIALITY CONTRACTORS (ASC)
7315 Wisconsin Avenue
Bethesda, MD 20814
301-657-3110

ASSOCIATION OF WALL AND CEILING INDUSTRIES (AWCI)
25 K Street, Northeast, Suite 300
Washington, DC 20009
202-783-2924

CEILING AND INTERIOR SYSTEMS CONTRACTORS ASSOCIATION (CISCA)
104 Wilmont Road, Suite 201
Deerfield, IL 60015
312-940-8800

INSULATION CONTRACTORS ASSOCIATION OF AMERICA (ICAA)
15819 Crabbs Branch Way
Rockville, MD 20855
301-926-3083

NATIONAL ASSOCIATION OF HOME BUILDERS OF THE UNITED STATES (NAHB)
15th and M Streets, Northwest
Washington, DC 20005
202-822-0200

NATIONAL ASSOCIATION OF MINORITY CONTRACTORS (NAMC)
806 15th Street, Northwest, Suite 340
Washington, DC 20005
202-347-8259

NATIONAL CONSTRUCTORS ASSOCIATION (NCA)
1101 15th Street, Northwest, Suite 1000
Washington, DC 20005
202-466-8880

NATIONAL FRAME BUILDERS ASSOCIATION (NFBA)
1163 East Ogden Avenue, Suite 705
Naperville, IL 60540
312-369-4114

NATIONAL KITCHEN CABINET ASSOCIATION
Post Office Box 6830
Falls Church, VA 22046
703-237-7580

WOODWORKING ASSOCIATION OF NORTH AMERICA
Post Office Box 706
Route 3 and Cummings Hill Road
Plymouth, NH 03264
603-336-3876

INTERNATIONAL WOODWORKERS OF AMERICA
1622 North Lombard Street
Portland, OR 97217
501-285-5281

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FL88CD18

019323
proposal # 013858

CAREER MERIT ACHIEVEMENT PLAN (CAREER MAP)

BASIC CABINET MAKING AND MILLWORK

(IN48.072300)

State of Florida

An affirmative action/equal opportunity employer

DEPARTMENT OF EDUCATION
Betty Castor, Commissioner of Education

DIVISION OF VOCATIONAL, ADULT AND COMMUNITY EDUCATION
Robert S. Howell, Director

DEVELOPED BY:
University of South Florida
Department of Adult and Vocational Education

INDUSTRY-BASED PARTNERSHIP PROGRAMS: The State of Florida is committed to the development of industry-based partnership programs, designed by education and industry to respond to industry's demand for a highly skilled work force.

ACKNOWLEDGEMENTS

PARTNERSHIP WITH INDUSTRY

The following industry representatives are recognized for their valuable contributions to the identification and validation of the basic cabinet making and millwork competencies reflected in this MAP:

Mr. Vince Giampapa, Shoreline Casework Systems
Mr. Michael F. Williams, Vice President, Williams Cabinet and Millwork, Inc.
Mr. Robert Roll, Southern Moulding and Trim
Mr. Fred Delise, Owner Coronet Cabinets
Mr. Claude Mailhot, Morgan Marine

For further information, contact
Bureau of Vocational Program and Staff Development
Division of Vocational, Adult, and Community Education
Department of Education
Knott Building
Tallahassee, FL 32399

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THIS MERIT ACHIEVEMENT PLAN RECORDS THE BASIC CABINET MAKING AND MILLWORK ACHIEVEMENTS OF:

Student's Name _____

Student ID Number _____

Student's Address _____

_____

Initial Instructor _____

School _____

Date Started _____

PRIMARY JOB TITLE(S) FOR BASIC CABINET MAKING AND MILLWORK

- Furniture Assemblers (OES#763.684-022)
- Patternmakers (OES#661.281-022)

Program completers qualify for the primary job title(s) listed above. Related job titles may be added based on those job titles found in industry and/or the Dictionary of Occupational Titles.

OVERVIEW

This Career MAP includes the competencies required for entry into the field of basic cabinet making and millwork. Business and industry representatives have recommended that students in this field master these competencies in order to become employable. Local education agencies (LEAs) may adapt these competencies to meet their workforce needs.

PURPOSE OF THE MAP

The purposes of the MAP are: to display the student performance standards (SPS) required by the LEA and to document the level of achievement on student performance standards that the student demonstrates.

HOW TO USE THE MAP

Administrator and Instructor. The administrator and instructor can use Career MAPs in curriculum planning, program updating and improvement and teacher recruitment, selection and updating. If the LEA changes or adds student performance standards, the revised or additional student performance standards should be included in the blank boxes that appear within each intended outcome or at the end of this MAP.

Instructor. The instructor can use Career MAPs to keep track of student progress on student performance standards. By periodically reviewing the ratings on student performance standards, the instructor can identify a student's strengths and weaknesses and, on that basis, identify the skills for which the student needs remedial instruction or advanced training. The MAP can also be useful in student counseling and evaluation.

Co-op Instructor/Employer. The employer who sponsors a co-op program should use the Career MAP for keeping a record of the student's performance on appropriate standards. The MAPs will also help the co-op instructor/employer in counseling and evaluating the student.

Student. The student may use the MAP to show potential employers the performance standards he or she has mastered. In order to present a complete record, the student should encourage the instructor/co-op employer to rate his or her level of achievement on all the appropriate student performance standards and to fill in the verification form/cooperative work experience page in the back of this MAP.

Employer. The MAP shows an employer the student performance standards mastered by the student (a prospective employee) and the proficiency level achieved on each student performance standard. This information can help the employer make decisions about hiring, job assignments and job-training needs.

RATING STUDENT PERFORMANCE STANDARDS

Ratings on student performance standards should be based upon business/industrial performance standards. The evaluator observes and evaluates student performance as he or she would in the role of the employer or supervisor.

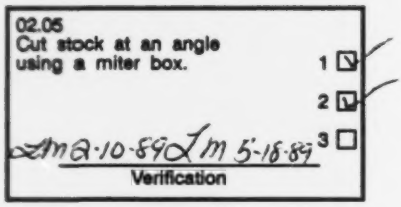
For each skill listed the learner receives a rating of 1, 2 or 3. Each rating indicates a particular level of achievement:

1 = Learner demonstrates knowledge and understanding of this student performance standard, but is not yet able to apply that knowledge or understanding.

2 = Learner performs this student performance standard satisfactorily with only periodic supervision.

3 = Learner performs this student performance standard satisfactorily without supervision.

Whenever a performance standard is demonstrated, the instructor checks the appropriate rating box (1, 2 or 3) and initials and dates the verification line. If the student later demonstrates a higher level of achievement on a performance competency, the instructor crosses out the old level, checks the higher level and then enters his or her initials and the new date on the verification line, as shown in the following example:



NOTE: A student performance standard without a checked rating indicates that the learner has not mastered the standard from lack of either ability, time, opportunity or need (the student's area of specialization may not have required it).

01.0 DEMONSTRATE PROFICIENCY IN APPLYING SAFETY RULES AND PROCEDURES.

01.01 Apply shop safety rules & procedures. 1 ☐ 2 ☐ 3 ☐ Verification	01.02 Apply personal safety rules & procedures. 1 ☐ 2 ☐ 3 ☐ Verification	01.03 Apply fire safety rules & procedures. 1 ☐ 2 ☐ 3 ☐ Verification
01.04 Apply electrical safety rules & procedures. 1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification
1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification

02.0 DEMONSTRATE PROFICIENCY USING HAND TOOLS.

02.01 Identify types & uses of files & rasps. 1 ☐ 2 ☐ 3 ☐ Verification	02.02 Lay out angles with squares. 1 ☐ 2 ☐ 3 ☐ Verification	02.03 Gage lines parallel to an edge with fingers, rules & squares. 1 ☐ 2 ☐ 3 ☐ Verification
02.04 Make cross cuts & rip cuts using hand saws. 1 ☐ 2 ☐ 3 ☐ Verification	02.05 Cut stock at an angle using a miter box. 1 ☐ 2 ☐ 3 ☐ Verification	02.06 Cut stock with a coping saw, back saw & keyhole saw. 1 ☐ 2 ☐ 3 ☐ Verification
02.07 Cut metal using a hacksaw. 1 ☐ 2 ☐ 3 ☐ Verification	02.08 Divide a distance into equal spaces using a divider. 1 ☐ 2 ☐ 3 ☐ Verification	02.09 Scribe & fit edges of stock to an irregular surface. 1 ☐ 2 ☐ 3 ☐ Verification

02.10 Sharpen drill bits & wood chisels. 1 ☐ 2 ☐ 3 ☐ Verification	02.11 Drill holes with hand drills. 1 ☐ 2 ☐ 3 ☐ Verification	02.12 Drive & set nails & screws. 1 ☐ 2 ☐ 3 ☐ Verification
02.13 Sharpen planes & cabinet scrapers. 1 ☐ 2 ☐ 3 ☐ Verification	02.14 Smooth wood surfaces using planes & cabinet scrapers. 1 ☐ 2 ☐ 3 ☐ Verification	02.15 Measure stock using rulers & tape measures. 1 ☐ 2 ☐ 3 ☐ Verification
02.16 Use a wood chisel to notch or mortise stock. 1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification
1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification

03.0 DEMONSTRATE PROFICIENCY OPERATING PORTABLE POWER TOOLS.

03.01 Utilize a circular saw to make straight, beveled & compound angle cuts. 1 ☐ 2 ☐ 3 ☐ Verification	03.02 Utilize a saber saw to make straight, beveled & compound angle cuts. 1 ☐ 2 ☐ 3 ☐ Verification	03.03 Utilize a portable drill to bore holes to specified depths. 1 ☐ 2 ☐ 3 ☐ Verification
03.04 Drive screws using a power screwdriver or screw gun. 1 ☐ 2 ☐ 3 ☐ Verification	03.05 Uitlize a power plane to square a straight edge. 1 ☐ 2 ☐ 3 ☐ Verification	03.06 Utilize a router to shape edges & cut a groove, dado & rabbet. 1 ☐ 2 ☐ 3 ☐ Verification
03.07 Sand surfaces with a belt sander & a finishing sander. 1 ☐ 2 ☐ 3 ☐ Verification	03.08 Fasten material with a pneumatic stapler or nailer. 1 ☐ 2 ☐ 3 ☐ Verification	03.09 Fasten a butt joint with a pneumatic corrugated fastener tool. 1 ☐ 2 ☐ 3 ☐ Verification

1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification
1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification

04.0 DEMONSTRATE PROFICIENCY OPERATING STATIONARY POWER WOODWORKING MACHINES.

04.01 Use a table saw to make cross, rip, miter, dado & groove cuts. 1 ☐ 2 ☐ 3 ☐ Verification	04.02 Use a radial arm saw to make cross, rip, miter, compound angle, dado & groove cuts. 1 ☐ 2 ☐ 3 ☐ Verification	04.03 Use a drill press to drill, counterbore & countersink holes in stock & bore holes at an angle. 1 ☐ 2 ☐ 3 ☐ Verification
04.04 Use a jointer to square, bevel or chamfer stock. 1 ☐ 2 ☐ 3 ☐ Verification	04.05 Use a plane to trim stock to a specified thickness. 1 ☐ 2 ☐ 3 ☐ Verification	04.06 Use a band saw to make straight, curved, rectangular & freehand cuts. 1 ☐ 2 ☐ 3 ☐ Verification
04.07 Remove & replace band saw blades & adjust guides. 1 ☐ 2 ☐ 3 ☐ Verification	04.08 Use a router to cut stock with & without a template. 1 ☐ 2 ☐ 3 ☐ Verification	04.09 Use a shaper to mold stock with a template, fence, miter gage or pin & bearing. 1 ☐ 2 ☐ 3 ☐ Verification
04.10 Use a power miter saw to make miter cuts. 1 ☐ 2 ☐ 3 ☐ Verification	04.11 Sand surfaces using power belt, disc & spindle sanders. 1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification
1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification

05.0 DEMONSTRATE PROFICIENCY IN PLANNING, DESIGNING AND LAYOUT OF CABINETS AND CASEWORK.

05.01 Convert measurements in inches to metric & metric to inches. 1 ☐ 2 ☐ 3 ☐ Verification	05.02 Interpret blueprints & explain common abbreviations used on drawings. 1 ☐ 2 ☐ 3 ☐ Verification	05.03 Draw plans to scale using an architect's ruler. 1 ☐ 2 ☐ 3 ☐ Verification
05.04 Lay out a rectangle, hexagon, octagon, ellipse & circle. 1 ☐ 2 ☐ 3 ☐ Verification	05.05 Lay out angles. 1 ☐ 2 ☐ 3 ☐ Verification	05.06 Select & match wood stock for compatibility of grain & color. 1 ☐ 2 ☐ 3 ☐ Verification
1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification
1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification

06.0 DEMONSTRATE PROFICIENCY IN CONSTRUCTING AND ASSEMBLING CABINET COMPONENTS.

06.01 Lay out & cut cabinet components from solid wood, plywood & particle board. 1 ☐ 2 ☐ 3 ☐ Verification	06.02 Lay out & cut joints in cabinet components. 1 ☐ 2 ☐ 3 ☐ Verification	06.03 Assemble & fasten cabinet base frame. 1 ☐ 2 ☐ 3 ☐ Verification
06.04 Assemble & fasten cabinet sides, back & front. 1 ☐ 2 ☐ 3 ☐ Verification	06.05 Prepare cabinet components for special fittings. 1 ☐ 2 ☐ 3 ☐ Verification	06.06 Cut & assemble cabinet shelving. 1 ☐ 2 ☐ 3 ☐ Verification

06.07
Assemble & fasten cabinet top.
1 ☐
2 ☐
3 ☐
Verification

06.08
Lay out & cut back splash components.
1 ☐
2 ☐
3 ☐
Verification

1 ☐
2 ☐
3 ☐
Verification

1 ☐
2 ☐
3 ☐
Verification

1 ☐
2 ☐
3 ☐
Verification

1 ☐
2 ☐
3 ☐
Verification

07.0 DEMONSTRATE PROFICIENCY IN CONSTRUCTING JOINTS.

07.01
Construct a butt joint.
1 ☐
2 ☐
3 ☐
Verification

07.02
Construct a doweled butt joint.
1 ☐
2 ☐
3 ☐
Verification

07.03
Construct a dado joint.
1 ☐
2 ☐
3 ☐
Verification

07.04
Construct a rabbeted joint.
1 ☐
2 ☐
3 ☐
Verification

07.05
Construct a lap joint.
1 ☐
2 ☐
3 ☐
Verification

07.06
Construct a miter joint.
1 ☐
2 ☐
3 ☐
Verification

07.07
Install dowels in common wood joints.
1 ☐
2 ☐
3 ☐
Verification

07.08
Construct a tongue & groove joint.
1 ☐
2 ☐
3 ☐
Verification

07.09
Construct a splined edge joint.
1 ☐
2 ☐
3 ☐
Verification

07.10
Construct a mortise & tenon joint.
1 ☐
2 ☐
3 ☐
Verification

07.11
Construct a dovetail joint.
1 ☐
2 ☐
3 ☐
Verification

07.12
Construct an end lap joint.
1 ☐
2 ☐
3 ☐
Verification

07.13
Construct a middle lap joint.
1 ☐
2 ☐
3 ☐
Verification

07.14
Construct a cross lap joint.
1 ☐
2 ☐
3 ☐
Verification

07.15
Construct a dovetail lap joint.
1 ☐
2 ☐
3 ☐
Verification

07.16 Construct a draw bolt joint. 1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification
1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification

08.0 DEMONSTRATE ABILITY TO FASTEN STOCK AND JOINTS.

08.01 Identify types of glues abd describe their applications. 1 ☐ 2 ☐ 3 ☐ Verification	08.02 Fasten stock with wood glue & clamps. 1 ☐ 2 ☐ 3 ☐ Verification	08.03 Glue boards edge to edge. 1 ☐ 2 ☐ 3 ☐ Verification
08.04 Fasten & glue mitered frames. 1 ☐ 2 ☐ 3 ☐ Verification	08.05 Fasten & glue doweled joints & segments. 1 ☐ 2 ☐ 3 ☐ Verification	08.06 Fasten stock & joints with nails, screws, bolts & staples. 1 ☐ 2 ☐ 3 ☐ Verification
08.07 Fill & finish nail & screw holes. 1 ☐ 2 ☐ 3 ☐ Verification	08.08 Install wood plugs in prepared holes. 1 ☐ 2 ☐ 3 ☐ Verification	08.09 Install & glue corner blocks. 1 ☐ 2 ☐ 3 ☐ Verification
1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification
1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification

09.0 DEMONSTRATE PROFICIENCY IN CONSTRUCTING AND ASSEMBLING CABINET DRAWERS AND DOORS.

09.01 Construct an overlay drawer. 1 ☐ 2 ☐ 3 ☐ Verification	09.02 Construct a lipped drawer. 1 ☐ 2 ☐ 3 ☐ Verification	09.03 Construct a flush drawer. 1 ☐ 2 ☐ 3 ☐ Verification
09.04 Install drawer guides. 1 ☐ 2 ☐ 3 ☐ Verification	09.05 Install drawer hardware. 1 ☐ 2 ☐ 3 ☐ Verification	09.06 Construct solid, panel & tambour doors. 1 ☐ 2 ☐ 3 ☐ Verification
1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification
1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification

10.0 DEMONSTRATE PROFICIENCY IN APPLYING LAMINATES.

10.01 Cut laminates to rough size of cabinet surface. 1 ☐ 2 ☐ 3 ☐ Verification	10.02 Apply glue to laminate & cabinet surfaces. 1 ☐ 2 ☐ 3 ☐ Verification	10.03 Accurately place laminate on cabinet surfaces. 1 ☐ 2 ☐ 3 ☐ Verification
10.04 Press & smooth laminate on cabinet surfaces. 1 ☐ 2 ☐ 3 ☐ Verification	10.05 Trim off excess laminate & file edges. 1 ☐ 2 ☐ 3 ☐ Verification	10.06 Seam two pieces of laminate together. 1 ☐ 2 ☐ 3 ☐ Verification

10.07 Remove excess glue from laminate surfaces. 1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification
1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification
1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification

11.0 DEMONSTRATE ABILITY TO FINISH SURFACES.

11.01 Sand wood surfaces for finishing. 1 ☐ 2 ☐ 3 ☐ Verification	11.02 Stain, bleach, fill & seal wood surfaces. 1 ☐ 2 ☐ 3 ☐ Verification	11.03 Apply clear & pigmented finishes using a brush. 1 ☐ 2 ☐ 3 ☐ Verification
1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification
1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification
1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification

0.0 DEMONSTRATE EMPLOYABILITY SKILLS.

0.01 Conduct a job search. 1 ☐ 2 ☐ 3 ☐ Verification	0.02 Secure information about a job. 1 ☐ 2 ☐ 3 ☐ Verification	0.03 Identify documents that may be required when applying for a job. 1 ☐ 2 ☐ 3 ☐ Verification
0.04 Complete a job application form correctly. 1 ☐ 2 ☐ 3 ☐ Verification	0.05 Demonstrate competence in job interview techniques. 1 ☐ 2 ☐ 3 ☐ Verification	0.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor or other persons. 1 ☐ 2 ☐ 3 ☐ Verification
0.07 Identify acceptable work habits. 1 ☐ 2 ☐ 3 ☐ Verification	0.08 Demonstrate knowledge of how to make job changes appropriately. 1 ☐ 2 ☐ 3 ☐ Verification	0.09 Demonstrate acceptable employee health habits. 1 ☐ 2 ☐ 3 ☐ Verification

00.0 DEMONSTRATE AN UNDERSTANDING OF ENTREPRENEURSHIP.

00.01 Define entrepreneurship. 1 ☐ 2 ☐ 3 ☐ Verification	00.02 Describe the importance of entrepreneurship to the American economy. 1 ☐ 2 ☐ 3 ☐ Verification	00.03 List the advantages & disadvantages of business ownership. 1 ☐ 2 ☐ 3 ☐ Verification
00.04 Identify the risks involved in ownership of a business. 1 ☐ 2 ☐ 3 ☐ Verification	00.05 Identify the necessary personal characteristics of a successful entrepreneur. 1 ☐ 2 ☐ 3 ☐ Verification	00.06 Identify the business skills needed to operate a small business efficiently & effectively. 1 ☐ 2 ☐ 3 ☐ Verification
1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification

P.O.W.E.R. SKILLS (PRINCIPLES OF WORK ENVIRONMENT READINESS)

000.0 COOPERATIVE WORK EXPERIENCE COMPETENCIES.

1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification
1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification
1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification
1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification
1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification
1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification
1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification	1 ☐ 2 ☐ 3 ☐ Verification

VERIFICATION

The instructor should verify the level of mastery achieved by the student by initialing the competency box each time the student masters a competency. Later, if the student achieves a higher degree of mastery of a competency, the higher degree should be recorded and verified by the instructor.

INSTRUCTOR SHOULD SIGN FULL NAME AND SCHOOL NAME AND ADDRESS IN THE SPACE BELOW.

Verification	Signature
	Title
	School Name
	School Address

Verification	Signature
	Title
	School Name
	School Address

Verification	Signature
	Title
	School Name
	School Address

COOPERATIVE WORK EXPERIENCE

In addition to classroom training and laboratory performance identified on the Career MAP, this student has participated in cooperative work experience with employers as shown below:

Dates _____ Employer _____

Address of Employer _____

Supervisor _____

Supervisor Title _____

Dates _____ Employer _____

Address of Employer _____

Supervisor _____

Supervisor Title _____

Dates _____ Employer _____

Address of Employer _____

Supervisor _____

Supervisor Title _____

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NOTES

This section of the MAP is provided so the instructor, employer, or student may list additional qualifying statements or other pertinent information. All comments should be initialed for verification.